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SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/407,543 03/20/95 WEILAND

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EXAMINER

FAILE, A

ART UNIT PAPER NUMBER

2611

DATE MAILED: 09/28/95

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 3 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- ☒ Notice of References Cited by Examiner, PTO-892.
- ☒ Notice of Draftsman's Patent Drawing Review, PTO-948.
- ☒ Notice of Art Cited by Applicant, PTO-1449.
- ☐ Notice of Informal Patent Application, PTO-152.
- ☐ Information on How to Effect Drawing Changes, PTO-1474.
- ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 5-11 are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. ☒ Claims 1-4 and 12 have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☒ Claims 5-11 are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

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Part III DETAILED ACTION

Information Disclosure Statement

1. The references listed in the Information Disclosure Statement submitted 7/17/95 have been considered by the examiner (see attached PTO-1449).

Drawings

2. The drawings are objected to because in figure 2, it appears the arrows from Threshold control 209 are pointed in the wrong direction. Correction is required.

3. Applicant is required to submit a proposed drawing correction in response to this Office Action. Any proposal by the applicant for amendment of the drawings to cure defects must consist of two parts:

a) A *separate* letter to the Draftsman in accordance with MPEP § 608.02(r); and

b) A print or pen-and-ink sketch showing changes in *red ink* in accordance with MPEP § 608.02(v).

IMPORTANT NOTE: The filing of new formal drawings to correct the noted defect may be deferred until the application is allowed by the examiner, but the print or pen-and-ink sketch with

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proposed corrections shown in red ink is required in response to this Office Action, and may not be deferred.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

5. Claims 5-6 and 8 are rejected under 35 U.S.C. § 103 as being unpatentable over applicant's prior art figure 1 in view of Katsuyama et al (US 4,870,698).

Regarding claim 5, the radio of prior art figure 1 performs the claimed "determining an open loop gain", "determining a gain adjust signal" and the "combining" steps. Prior art figure 1 fails to specifically show the claimed comparing and adjusting steps. It is noted these steps merely read on comparing the

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determined gain control signal to an upper bound and making sure the amp's gain does not exceed the upper bound.

In the same field of endeavor, Katsuyama et al shows a gain control method for a radio telephone where the maximum gain setting is adjusted dependent on the detected temperature of the device in order to prevent the interruption of communication due to an over-heated power amp (see col. 1, lines 38-55). If the temperature is above a threshold level, a new (smaller) maximum gain setting is used as the input to logic circuit 130 (see figure 1 and col. 3, lines 1-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify prior art figure 1 as taught by Katsuyama et al by providing a maximum gain setting to which the desired gain signal is compared and "adjusting" the gain control signal in accordance with that comparison (i.e., precluding the desired gain control from exceeding the maximum setting) in order to provide protection for the power amplifier and to prevent the interruption of communication due to an over-heated power amp.

Regarding claim 6, Katsuyama et al teaches adjusting the gain dependent on the detected temperature (see figure 1, 153 and col. 3, lines 1-44).

Claim 8 contains the limitations of claims 5 and 6 with the additional limitation of prohibiting the power control commands from changing the gain when the summation signal is greater than

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the maximum gain. It follows from the discussion with respect to claim 5 that it would have been obvious to one of ordinary skill in the art at the time the invention was made to further preclude the power amp's gain from increasing beyond the maximum level to prevent damage or shut down, even though the radio has received a power level command in excess of it's own maximum power level setting.

6. Claim 7 is rejected under 35 U.S.C. § 103 as being unpatentable over applicant's prior art figure 1 in view of Katsuyama et al (US 4,870,698) as applied to claims 5-6 above and further in view of Machida et al (US 4,882,767).

Claim 7 calls for modifying the "maximum gain setting" by using the detected output power. Both prior art figure 1 and Katsuyama et al fail to specifically disclose such a feature. Modifying the maximum gain setting would have been advantageous in order to compensate for temperature fluctuations and component aging which are well known to occur in portable phone transceivers and have negative effects on the phone's operation.

In the same field of endeavor, Machida discloses detecting the output power level from the power amp and providing a modified adjustment to the desired gain based on a circuit which compensates the desired gain based on temperature fluctuations (perceived through the feedback signals). See figure 1 and col.

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2 of Machida. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of prior art figure in view of Katsuyama et al by providing an adjustment to the desired gain (maximum gain) through the use of a feedback signal as shown by Machida in order to provide a more accurate gain adjustment signal. The claimed step of "scaling" the detected power signals would have been obvious to one of ordinary skill in the art in order to bring the signal into the proper range for processing.

7. Claims 9-11 are rejected under 35 U.S.C. § 103 as being unpatentable over applicant's prior art figure 1 in view of the publication "CDMA Network Engineering Handbook", Chapter 8.

Regarding claim 9, the radio of prior art figure 1 performs the claimed "determining a gain adjust signal in response to the transmit power commands". Prior art figure 1 fails to specifically show the claimed detecting, digitizing and comparing steps. It is noted these steps merely read on comparing the detected gain from the power amp to a maximum permissible setting and ensuring the power amp's gain does not exceed the maximum level.

In the same field of endeavor, the CDMA handbook prescribes the power control specifications for the reverse mobile link in chapter 8. At page 8-4, the handbook discloses the open loop

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power is limited by the "maximum allowed transmit power". Furthermore, it is well known that the CDMA standard in which the radio of prior art figure 1 operates specifies stringent power output level requirements for mobile phones. Adherence to these standards precludes mobile transmissions from interfering with one another. One of ordinary skill in the art would have been motivated to maintain the power amp of prior art figure 1 below a "maximum power level" for the purpose of reducing interference among users and, further, for providing protection for the unit's power amp. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine the detected output power, compare it to a maximum gain and prohibit the power amp from operating above the maximum allowable gain in order to prevent interference in the system. The claimed step of "digitizing" the detected power would have been obvious in order to present the detected power level to a processor for comparison to the maximum allowable gain.

Claim 10 contains the limitations of claim 9 and, therefore, is analyzed with respect to claim 9, where the additional limitation of "decreasing the gain by a predetermined amount of time for every predetermined unit of time" would have been obvious to one of ordinary skill in the art at the time the invention was made for the purpose of incrementally reducing the gain until it is under the maximum allowable level.

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Claim 11 contains the limitations of claim 9 and, therefore, is analyzed with respect to claim 9, where the additional limitation of "integrating the difference" would have been obvious to one of ordinary skill in the art at the time the invention was made for the purpose of accumulating the gain control signal.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Miyazaki, Timmons et al, Pickett et al, Hietala et al, Black et al, Mitzlaff and MacCallum et al all teach gain control for a power amp.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Faile whose telephone number is (703) 305-4380. The examiner can normally be reached Monday - Thursday (and every other Friday) from 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reinhard Eisenzopf, can be reached on (703) 305-4711. The fax phone number for this Group is (703) 305-9508.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-4700.

AIF:aif
September 18, 1995

Andrew Faile
**ANDREW I. FAILE
PATENT EXAMINER
GROUP 2600**